ENZYME ARRAY AND ASSAY

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims priority from GB0311946.8, filed May 23, 2003, GB0224872.2, filed October 25, 2002 and PCT/EP02/14859, filed December 20, 2002 each of which is hereby incorporated by reference in its entirety.

FIELD OF THE INVENTION

The present invention relates to an enzyme array and assay and more particularly to a kinase array and assay for use with a mass spectrometer, particularly, though not exclusively, a laser desorption/ionisation, such as a MALDI mass spectrometer.

BACKGROUND TO THE INVENTION

Proteomic applications for mass spectrometry have seen a strong growth in recent years. Analytical methods used in proteomics are mainly based on 2D-gel electrophoresis for protein separation, and either mass spectrometry or Edman degradation for protein identification. The limitations of 2D gel electrophoresis include relatively poor resolution, sensitivity and reproducibility. As a result proteomic methods which avoid 2D-gel electrophoresis such as Isotope Coded Affinity Tag (ICAT) [1], Tandem Affinity Protein (TAP)[2] purification and the use of protein microarrays [3] are gaining popularity.

Furthermore, these new methods have broadened the scope of proteomics from collecting and cataloguing differential expression data to a stage where relations between molecules can be assigned and this has been referred to as functional proteomics. Protein microarrays have recently been used to analyze 119 yeast kinases [4]and a major fraction of the yeast proteome [5].

Protein microarrays have been analyzed by enhanced chemi-luminescence (ECL), fluorescent or radioactive labels or via antibody based detection systems, but not to date by mass spectrometry.

The current reliance on the use of labeled ligands, such as antibodies or labeled probes, to analyze protein microarrays imposes constraints on the applications for protein microarrays. Hence a sensitive label free detection system would be of great advantage and would broaden